WHAT IS CLAIMED IS:

1. An aminoglycoside-containing hydrogel nanoarticle comprising i) a polymeric scaffold core comprising crosslinked hydrophilic building blocks, and ii) at least one aminoglycoside molecule physically incorporated into or onto the scaffold core.

2. An aminoglycoside-containing hydrogel nanoarticle comprising a polymeric scaffold core comprising crosslinked hydrophilic building blocks, and ii) at least one aminoglycoside molecule chemically incorporated into the scaffold core.

3. A hydrogel nanoarticle according to claim 2 which further comprises at least one aminoglycoside molecule physically incorporated into or onto the scaffold core.

4. A hydrogel nanoarticle according to claim 2 which further comprises at least one aminoglycoside molecule covalently attached onto the scaffold core.

5. A hydrogel nanoarticle according to claims 1, 2, 3, or 4 which further comprises at least two or more recognition elements covalently attached onto the polymeric scaffold core.

6. A hydrogel nanoarticle according to claim 5 wherein the recognition element is covalently linked directly to a polymer molecule of the scaffold.

7. A hydrogel nanoarticle according to claim 5 wherein the recognition element is covalently linked by a linker molecule to a polymer molecule of the scaffold.

8. A hydrogel nanoarticle according to claim 7 wherein the linker molecule is a polyethylene glycol chain.

9. A hydrogel nanoarticle according to any of claims 1 to 8 wherein the scaffold comprises at least some degradable covalent linkages.

10. A hydrogel nanoarticle according to any of claims 1 to 9 wherein the scaffold further comprises small molecule crosslinking agents.

11. A hydrogel nanoarticle according to any of claims 1 to 10 wherein at least some of the hydrophilic building blocks are carbohydrate-based molecules.

12. A hydrogel nanoarticle according to claim 11 wherein at least some of the carbohydrate-based molecules are functionalized with acrylate, methacrylate, acrylamide, or methacrylamide moieties.

13. A hydrogel nanoarticle according to any of claims 1 to 12 wherein at least some of the hydrophilic building blocks are comprised of inulin or dextran.

14. A hydrogel nanoarticle according to claim 13 wherein at least some of the hydrophilic building blocks are inulin multi-methacrylate.

15. A hydrogel nanoarticle according to any of claims 1 to 14 wherein at least some of the hydrophilic building blocks are N,N'-cystinebisacrylamide.

16. A hydrogel nanoarticle according to any of claims 1 to 15 wherein at least some of the hydrophilic building blocks are diacetone acrylamide.

17. A hydrogel nanoarticle according to any of claims 1 to 12 wherein the building blocks comprise inulin multi-methacrylate, N,N'-cystinebisacrylamide, and sodium acrylate.

18. A hydrogel nanoarticle according to any of claims 1 to 12 wherein the building blocks comprise inulin multi-methacrylate, N,N'-cystinebisacrylamide, and diacetone acrylamide.

19. A hydrogel nanoarticle according to any of claims 1 to 18 which further comprises one or more surface attached polymer molecules covalently attached to the nanoarticle scaffold core.

20. A hydrogel nanoarticle according to claims 19 wherein the surface attached polymer molecules comprise polyethyleneglycol.

21. A hydrogel nanoarticle according to any of claims 1 to 20 which has an overall neutral or negative charge.

22. Use of an aminoglycoside-containing hydrogel nanoparticle according to any of claims 1 to 21 as an antibiotic.

23. Use of an aminoglycoside-containing hydrogel nanoparticle according to claim 22 as an antibiotic against anaerobic gram-positive bacteria.

24. A method of improving the activity of aminoglycosides, the method comprising incorporating the aminoglycosides in intimate relationship to a neutral or negatively charged polymeric nanostructure comprising a hydrogel scaffold core comprised of crosslinked hydrophilic building blocks.

25. A method of decreasing the toxicity of aminoglycosides, the method comprising administering to an environment containing the site of an infection, an aminoglycoside-containing hydrogel nanoarticle comprising i) a polymeric scaffold core comprising crosslinked hydrophilic building blocks, ii) at least one aminoglycoside in intimate relationship to the scaffold core, and iii) two or more recognition elements covalently attached onto the scaffold core, the recognition elements having binding affinity for either markers of the infected tissue or directly the pathogen of the infection.

26. A method of increasing the bactericidal activity of aminoglycosides, the method comprising administering to an environment containing the site of an infection, an aminoglycoside-containing hydrogel nanoarticle comprising i) a polymeric scaffold core comprising crosslinked hydrophilic building blocks, ii) at least one aminoglycoside in intimate relationship to the scaffold core, and iii) two or more recognition elements covalently attached onto the scaffold core, the recognition elements having binding affinity for either markers of the infected tissue or directly the pathogen of the infection.

27. A method according to claim 24, 25 or 26 wherein the aminoglycosides are physically incorporated into or onto the scaffold core.

28. A method according to claim 24, 25 or 26 wherein the aminoglycosides are chemically incorporated into the scaffold core as building blocks.

29. A method according to claim 28 which further comprises at least one aminoglycoside physically incorporated into or onto the scaffold core.

30. A method according to claim 28 which further comprises at least one aminoglycoside covalently attached onto the scaffold core.